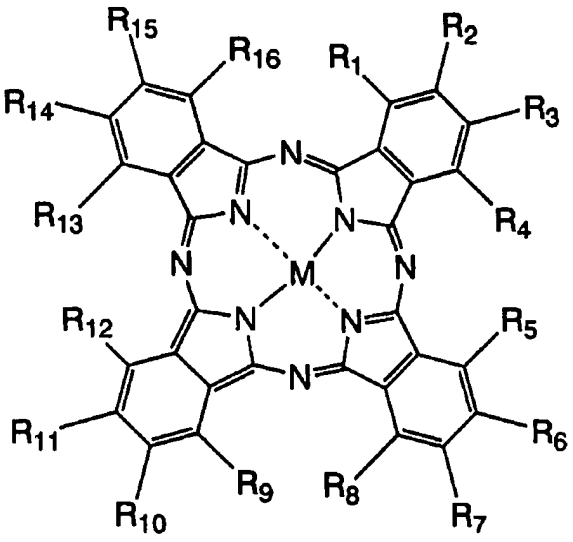
Amendments to the claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims

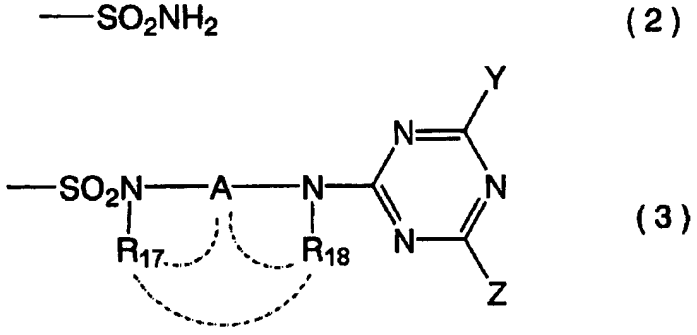
1. (Currently amended) A phthalocyanine colorant represented by Formula (1):



(1)

~~[in Formula (1),~~ wherein M represents a hydrogen atom, a metal atom, a metal oxide, a metal hydroxide, or a metal halide; R_2, R_3, R_6, R_7, R_{10}, R_{11}, R_{14} and R_{15} each independently represent an unsubstituted sulfamoyl group represented by Formula (2), a substituted sulfamoyl group represented by Formula (3), or a hydrogen atom, provided that at least one of R_2, R_3, R_6, R_7, R_{10}, R_{11}, R_{14} and R_{15} is

~~an~~ the unsubstituted sulfamoyl group represented by Formula (2), and at least one thereof is ~~a~~ the substituted sulfamoyl group represented by Formula (3); and R_1, R_4, R_5, R_8, R_9, R_{12}, R_{13} and R_{16} represent hydrogen atoms; the sum of a number of ~~an~~ the unsubstituted sulfamoyl group and a number of ~~a~~ the substituted sulfamoyl group is 2 to 4, and a number of ~~an~~ the unsubstituted sulfamoyl group is 1 to 3 and a number of ~~a~~ the substituted sulfamoyl group is 1 to 3~~.~~~~]~~:

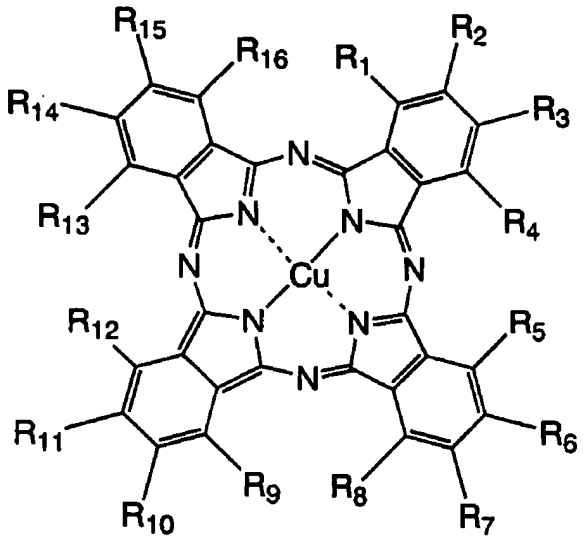


~~[in Formula (3),~~ wherein R_{17} and R_{18} each independently represent a hydrogen atom, ~~a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heterocyclic group, and a substituted or unsubstituted alkenyl group~~; A represents an alkylene group having 1 to 4 carbon atoms ~~a crosslinking group, and adjacent R_{17}, R_{18} and A may form a ring by bonding~~

~~together~~; any one of Y and Z ~~each independently~~ represents ~~a halogen atom, a hydroxyl group, a sulfonic acid group, a carboxyl group,~~ an amino group, ~~a substituted or unsubstituted alkoxy group, a substituted or unsubstituted cycloalkyloxy group, a substituted or unsubstituted aryloxyl group, a substituted or unsubstituted heterocyclic oxy group, a substituted or unsubstituted alkenyloxy group, a substituted or unsubstituted~~ or a C1 - C6 alkylamino group substituted with a sulfonic acid group or a carboxyl group and the other is a phenylamino group or a naphthylamino group substituted with a sulfonic acid group or a carboxyl group ~~a substituted or unsubstituted cycloalkylamino group, a substituted or unsubstituted arylamino group, a substituted or unsubstituted heterocyclic amino group, a substituted or unsubstituted alkenylamino group, a substituted or unsubstituted dialkylamino group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted heterocyclic thio group, a substituted or unsubstituted alkenylthio group, provided that at least one of Y and Z is a group having an ionic and hydrophilic group as a substituent.~~].

2. (Currently amended) The phthalocyanine colorant according to Claim 1, wherein Formula (1) according to

Claim 1 is represented by Formula (4) wherein M is Cu:



(4)

~~wherein~~ R_1 to R_{16} mean the same as in Formula (1)~~.~~

3. (Canceled)

4. (Currently amended) The phthalocyanine colorant according to ~~any one of Claims~~ claim 1 ~~to 3~~, wherein in each of combinations of R_2 and R_3, R_6 and R_7, R_{10} and R_{11}, and R_{14} and R_{15}, one member of each combination is a hydrogen atom, and the other is an unsubstituted sulfamoyl group represented by Formula (2), a substituted sulfamoyl group represented by Formula (3) or a hydrogen atom, and among R_2, R_3, R_6, R_7, R_{10}, R_{11}, R_{14} and R_{15}, at least one is an unsubstituted sulfamoyl group and at least one is a substituted sulfamoyl group represented by Formula (3).

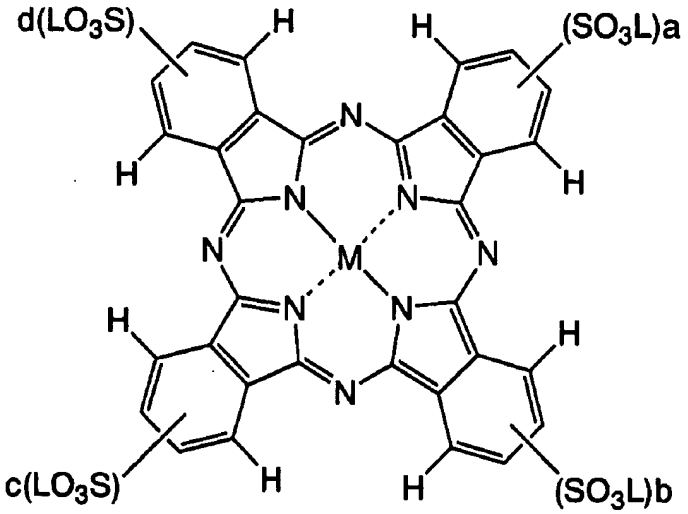
5. (Canceled)

6. (Canceled)

7. (Canceled)

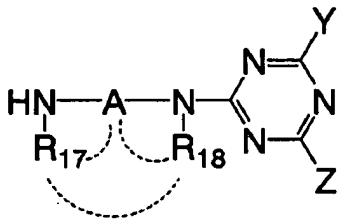
8. (Currently amended) The phthalocyanine colorant according to Claim 1, wherein content of ~~a~~ the colorant of Formula (1) is at least 60% based on the total amount of colorants.

9. (Currently amended) The phthalocyanine colorant according to ~~any one of Claims~~ claim 1 ~~to 8~~, wherein the colorant of Formula (1) is obtained by subjecting the phthalocyanine colorant or the salt thereof represented by Formula (6) to a reaction with a chlorinating reagent to convert a sulfonic acid group to a chlorosulfonic acid group, followed by further reaction with an organic amine represented by Formula (X) as shown below and an amidating reagent:



(6)

~~[in Formula (6),~~ wherein M represents a hydrogen atom, a metal atom, a metal oxide, a metal hydroxide or a metal halide; L represents a hydrogen atom, an alkali metal ion, an alkali earth metal ion, an onium ion of an organic amine or an ammonium ion; a, b, c and d is 0 or 1, and the sum thereof is an integer of 2 to 4 ~~.]~~:



(X)

~~[in Formula (X),~~ wherein R_{17} and R_{18} each independently represent a hydrogen atom, ~~a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heterocyclic group, and a substituted or unsubstituted alkenyl group~~; A represents an alkylene group having 1 to 4 carbon atoms ~~a crosslinking group, and adjacent R_{17}, R_{18} and A may form a ring by bonding together~~; any one of Y and Z ~~each independently~~ represents ~~a halogen atom, a hydroxyl group, a sulfonic acid group, a carboxyl group,~~ an amino group, ~~a substituted or~~

~~unsubstituted alkoxy group, a substituted or unsubstituted cycloalkyloxy group, a substituted or unsubstituted aryloxyl group, a substituted or unsubstituted heterocyclic oxy group, a substituted or unsubstituted alkenyloxy group, a substituted or unsubstituted~~ or a C1 - C6 alkylamino group substituted with a sulfonic acid group or a carboxyl group and the other is a phenylamino group substituted with a sulfonic acid group or a carboxyl group or a naphthylamino group substituted with a sulfonic acid group or a carboxyl group~~, a substituted or unsubstituted cycloalkylamino group, a substituted or unsubstituted arylamino group, a substituted or unsubstituted heterocyclic amino group, a substituted or unsubstituted alkenylamino group, a substituted or unsubstituted dialkylamino group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted heterocyclic thio group, a substituted or unsubstituted alkenylthio group, provided that at least one of Y and Z is a group having an ionic and hydrophilic group as a substituent.]~~.

10. (Canceled)

11. (canceled)

12. (Canceled)

13. (Currently amended) The phthalocyanine colorant

according to claim 9 ~~any one of Claims 10 to 12~~, wherein the metallic compound is a copper compound.

14. (Currently amended) An ink ~~characterized by~~ comprising, as a colorant component, the phthalocyanine colorant according to any one of Claims 1, 2, 4, 8, 9 or ~~to~~ 13.

15. (Currently amended) The ink ~~according to Claim 14, which comprises~~ comprising the phthalocyanine colorant according to Claim 1 and an organic solvent.

16. (Canceled)

17. (Currently amended) An ink set comprising ~~characterized by using the ink according to any one of Claims 14 to 16 as at least one kind in an ink-jet printer which uses~~ at least two kinds of cyan inks having different colorant concentrations, wherein one of them is an ink comprising the phthalocyanine colorant according to Claim 1 or an ink comprising the phthalocyanine colorant according to Claim 1 and an organic solvent.

18. (Currently amended) ~~An ink-jet recording~~ A method for ink-jet recording, comprising jetting ink droplets ~~characterized by using, as an ink, the ink or the ink set according to any one of Claims 14 to 17, in an ink-jet recording method wherein recording is conducted~~ onto a recording material ~~by jetting ink droplets~~ in response to

recording signals, wherein the ink comprises the phthalocyanine colorant according to claim 1.

19. (Currently amended) The method for ink-jet recording ~~method~~ according to Claim 18, wherein the recording material is a sheet for information transmission.

20. (Currently amended) The method for ink-jet recording ~~method~~ according to Claim 19, wherein the sheet for information transmission is a surface-treated sheet and a sheet having an ink image receiving layer which contains white inorganic pigment particles on a backing material.

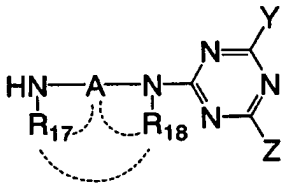
21. A container comprising ~~the~~ an ink comprising the phthalocyanine colorant according to Claim 1 or the ink set according to ~~any one of Claims 14 to~~ Claim 17.

22. (Original) An ink-jet printer comprising the container according to Claim 21.

23. (Currently amended) A colored product which is colored with a phthalocyanine colorant according to claim 1, ~~the~~ an ink comprising the phthalocyanine colorant according to Claim 1 or the ink set according to ~~any one of Claims 14 to~~ claim 17.

24. (Currently amended) A method for producing a phthalocyanine colorant characterized by being obtained by subjecting derivatives of 4-sulfophthalic acid selected from the group consisting of 4-sulfophthalic acid, 4-

sulfophthalic anhydride, 4-sulfophthalimide, 4-sulfophthalonitrile, 4- or 5-sulfo-2-cyanobenzamide, 5-sulfo-1,3-diiminoisoindolin and salts thereof or reaction of said derivatives of 4-sulfophthalic acid to reaction with themselves or subjecting ~~a~~ said derivative of 4-sulfophthalic acid to reaction with a derivative of a phthalic acid (anhydride) in the presence of a copper compound to obtain a compound or a salt thereof, which is reacted with a chlorinating reagent to convert a sulfonic acid group to a chlorosulfonyl group, followed by further reaction with an organic amine represented by the following ~~above~~ Formula (X)

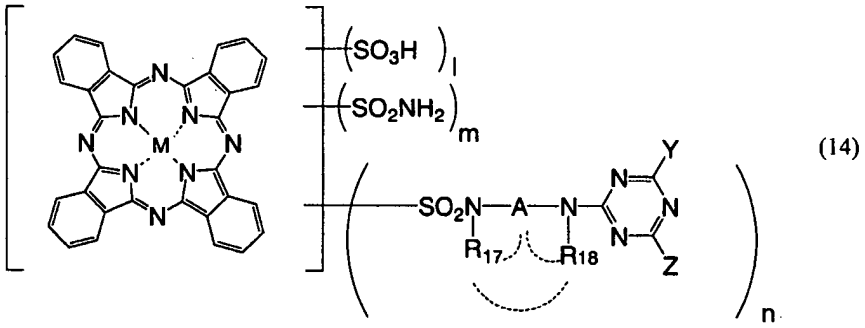


(X)

wherein in Formula (X), R_{17} and R_{18} each independently represent a hydrogen atom; A represents an alkylene group having 1 to 4 carbon atoms; any one of Y and Z represents an amino group, or a C1 - C6 alkylamino group substituted with a sulfonic acid group or a carboxyl group and the other is a phenylamino group substituted with a sulfonic acid group or a carboxyl group or a naphthylamino group substituted with a sulfonic acid group or a carboxyl group,

and an amidating reagent.

25. (Currently amended) A phthalocyanine colorant which has not less than 60% of a compound substituted at the β-position and not more than 40% of a compound substituted at the α-position in a phthalocyanine colorant represented by Formula (14) as shown below:



(14)

~~wherein~~ M represents a hydrogen atom, a metal atom, a metal oxide, a metal hydroxide or a metal halide; l includes 0 and lower than 1; m is not smaller than 0.5 and not larger than 3; n is not smaller than 1 and not larger than 3.5, and the sum of l, m and n is not smaller than 2 and not larger than 4; R_{17} and R_{18} each independently represent a hydrogen atom~~, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heterocyclic group, and a~~

~~substituted or unsubstituted alkenyl group;~~ and A represents an alkylene group having 1 to 4 carbon atoms~~a crosslinking group, and adjacent R_{17}, R_{18} and A may form a ring by bonding together~~; any one of Y and Z represents ~~each independently represent a halogen atom, a hydroxyl group, a sulfonic acid group, a carboxyl group,~~ an amino group,~~ a substituted or unsubstituted alkoxy group, a substituted or unsubstituted cycloalkyloxy group, a substituted or unsubstituted aryloxyl group, a substituted or unsubstituted heterocyclic oxy group, a substituted or unsubstituted alkenyloxy group, a substituted or unsubstituted~~ or a C1 - C6 alkylamino group substituted with a sulfonic acid group or a carboxyl group and the other is a phenylamino group substituted with a sulfonic acid group or a carboxyl group or a naphthylamino group substituted with a sulfonic acid group or a carboxyl group.~~, a substituted or unsubstituted cycloalkylamino group, a substituted or unsubstituted arylamino group, a substituted or unsubstituted heterocyclic amino group, a substituted or unsubstituted alkenylamino group, a substituted or unsubstituted dialkylamino group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted heterocyclic thio group, a substituted or~~

~~unsubstituted alkenylthio group, provided that at least one of Y and Z is a group having an ionic and hydrophilic group as a substituent.]~~

26. (Canceled)

27. (Canceled)

28. (Currently amended) The phthalocyanine colorant according to Claim 25, wherein M represents a copper atom; A represents an alkylene group having 1 to 4 carbon atoms ~~a divalent crosslinking group having carbon atoms of 1 to 6~~; l includes 0 and smaller than 1; m is not smaller than 0.5 and not larger than 3; n is not smaller than 1 and not higher than 3; and the sum of l, m and n is 2 to 4; both R_{17} and R_{18} represent hydrogen atoms; any one of Y and Z ~~each independently represent~~ represents an amino group, ~~a substituted or unsubstituted~~ or a C1 - C6 alkylamino group substituted with a sulfonic acid group or a carboxyl group and the other is a phenylamino group substituted with a sulfonic acid group or a carboxyl group or a naphthylamino group substituted with a sulfonic acid group or a carboxyl group. ~~a substituted or unsubstituted arylamino group, a substituted or unsubstituted dialkylamino group, provided that at least one of Y and Z is a group having an ionic and hydrophilic group as a substituent.~~